

Title (en)  
MULTILAYERED SOFC DEVICE ON CERAMIC SUPPORT STRUCTURE

Title (de)  
MEHRSCHICHTIGE SOFC-VORRICHTUNG AUF EINER KERAMISCHEN TRÄGERSTRUKTUR

Title (fr)  
DISPOSITIF ET SYSTÈME DE PILE À COMBUSTIBLE

Publication  
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Application  
**EP 08847634 A 20081108**

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• US 26743908 A 20081107

Abstract (en)  
[origin: US2009123810A1] Fuel cell devices and fuel cell systems, methods of using same, and methods of making same are provided. In certain embodiments, the fuel cell devices may include one or more active layers containing active cells that are connected electrically in parallel and/or series. In certain embodiments, the fuel cell devices include an elongate ceramic support structure the length of which is the greatest dimension such that the coefficient of thermal expansion has only one dominant axis coextensive with the length. In certain embodiments, a reaction zone is positioned along a first portion of the length for heating to a reaction temperature, and at least one cold zone is positioned along a second portion of the length for operating below the reaction temperature. There are one or more gas passages, each having an associated anode or cathode. In some embodiments, ceramic end tubes are permanently attached to the ceramic support structure to supply gases to the passages. In certain embodiments, a multilayer active structure is attached upon a flat tube having a plurality of channels therein for feeding gases into the passages of the multilayer active structure. In other embodiments, multilayer active structures are provided in which the electrodes contain pluralities of microtubular or nanotubular passages for feeding gases thereto. In yet other embodiments, the multilayer active structure is contained within a ceramic support structure that includes two elongate members that extend outwardly from one edge for feeding gases into the multilayer active structure.

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